SHARP®

MODEL EL-344G

ELECTRONIC CALCULATOR

ELSI MATE

OPERATION MANUAL

LIMITED WARRANTY

SHARP ELECTRONICS CORPORATION warrants to the first consumer purchaser that this Sharp brand product (the 'Product'), when shipped in its original container, will be free from defective workmanship and materials and agrees that it will, at its option, either repair the defect or replace the defective Product or part thereof at no charge to the purchaser for parts or labor for the time period(s) set forth below.

This warranty does not apply to any appearance items of the Product nor to the additional excluded item(s) set forth below nor to any product the exterior of which has been damaged or defaced, which has been subjected to misuse, abnormal service or handling or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser should follow the steps set forth below and provide proof of purchase to the servicer.

The limited warranty described herein is in addition to whatever implied warranties may be granted to purchasers by law. ALL IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE PERIOD(S) FROM THE DATE OF PURCHASE SET FORTH BELOW. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described herein or to extend the duration of any warranties beyond the time period described herein on behalf of Sharp.

The warranties described herein shall be the sole and exclusive warranties granted by Sharp and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Sharp to the purchaser with respect to the Product and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise. In no event shall Sharp be liable, or in any way responsible, for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than an authorized servicer. Nor shall Sharp be liable, or in any way responsible, for any incidental or consequential economic or property damage. Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

THE WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Your Product:	Electronic Calculator
Warranty Period for this Product:	One (1) year parts and labor from date of purchase.
Additional items excluded from warranty coverage:	Any consumable items such as paper, maintenance cartridge, ink cartridges supplied with the Product or to any equipment or any hardware, software, firmware, fluorescent lamp, power cords, covers, rubber parts, or peripherals other than the Product.
Where to obtain service:	At a Sharp Authorized Servicer located in the United States. To find out the location of the nearest Sharp Authorized Servicer, call Sharp toll free at 800-BE-SHARP.
What to do to obtain service:	Ship (prepaid) or carry in your Product to a Sharp Authorized Servicer. Be sure to have proof of purchase available. If you ship or mail the Product, be sure it is packaged carefully.

TO OBTAIN SUPPLY, ACCESSORY OR PRODUCT INFORMATION, CALL 1-800-BE-SHARP.

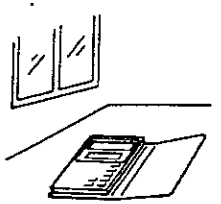
POWER SUPPLY

Please press ON/CA whenever you see no indication, or meaningless figures or signs despite sufficient light after opening the wallet.

Brightness for operation

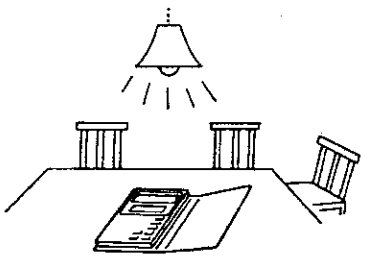
If the light exposed to the solar cell is insufficient, the calculator is not powered to operate. With the brightness criterion below, operate the calculator at **50 lux or more.**

Outdoors or by the window:



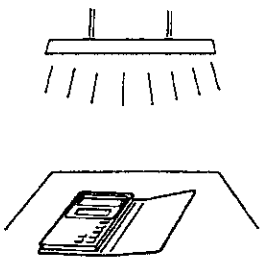
Used the calculator where it is not exposed to direct sunlight but received enough illumination for comfortable reading.

Incandescent lamp:



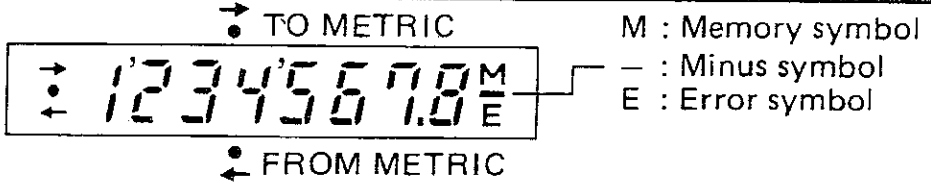
Use the calculator wherever it receives the same illumination as attained within 2.5 meters of a 100 Watts incandescent lamp.

Fluorescent lamp:



Use the calculator wherever it receives the same illumination as attained within 1.5 meters of a 15 Watts fluorescent lamp.

DISPLAY



→ : Appears when [→] is pressed.
← : Appears when [←] is pressed.
: Indicates that the number of display is a metric value.
: Indicates that the number of display is a U.S. measure value.

CLEAR AND CORRECTION

- **Clear number entry** — 123 + 455 → 123 + 456 ⇨ 123 [+] 455 [C-CE] 456
- **Correct function** — 123 × → 123 ÷ 4 ⇨ 123 [×] [÷] 4
- **Clear the calculator (except memory)** — Press [C-CE] .
- **Clear the memory** — Press [R-CM] [R-CM] .
- **Clear error conditions** — Press [C-CE] or [ON/CA] .

(In the case of pressing [ON/CA] the contents of the memory is cleared.)

OPERATIONS

- Be sure to press each key accurately and firmly.
- This model has special soft keys. To avoid scratching the keys, do not push them with hard, sharp objects.

1. NORMAL CALCULATION

Calculations	Example	Operation	Display (Answer)
[+] [−] [×] [÷]	12 × 3 + 5 = (−24 + 2) ÷ 4 =	12 [×] 3 [+] 5 [=] [C·CE] 24 [+/−] [+] 2 [÷] 4 [=]	41. 5.5−
Constant calculations	34 + 57 = 45 + 57 =	34 [+] 57 [=] 45 [=]	91. 102.
	48 − 23 = 14 − 23 =	48 [−] 23 [=] 14 [=]	25. 9.−
	68 × 25 = 68 × 40 =	68 [×] 25 [=] 40 [=]	1'700. 2'720.
	35 ÷ 14 = 98 ÷ 14 =	35 [÷] 14 [=] 98 [=]	2.5 7.

Calculations	Example	Operation	Display (Answer)
Square & Power	$5^2 = 5 \times 5 =$ $5^3 = 5 \times 5 \times 5 =$ $2^6 = (2^3)^2 =$	5 [×] [=] 5 [×] [=] [=] 2 [×] [=] [=] [×] [=]	25. 125. 64.
Reciprocal calculation	$\frac{1}{8} =$	8 [÷] [=]	0.125
Percentage	200 x 10% = 9 ÷ 36 = (%)	200 [×] 10 [%] 9 [÷] 36 [%]	20. 25.
Add-on/ discount calculations	200 + (10% of 200) =	200 [+] 10 [%] (or 200 [×] 10 [%] [+] [=])	220.
	500 – (20% of 500) =	500 [–] 20 [%] (or 500 [×] 20 [%] [–] [=])	400.

MEMORY KEYS: These keys have access to the memory register to store, calculate and recall numbers for further use.

Memory plus [M+] : When pressed after a numeric key or a calculation, this key adds the numbers or the result to the memory register.

Memory minus [M–] : When pressed after a numeric key or a calculation, this key subtracts the numbers or the result from the memory register.

Recall/clear memory (R-CM): Pressed once, recalls the contents of the memory to the display.
Pressed twice, clears all the contents from the memory.

Calculations	Example	Operation	Display (Answer)
Memory calculations	25 x 5 = ① –) 84 ÷ 3 = ② +) 68 + 17 = ③ Total = ④	Clear the memory before calculation. R-CM R-CM 25 × 5 M+ 84 ÷ 3 M– 68 + 17 M+ R-CM (M+ and M– work as =)	125.M ① 28.M ② 85.M ③ 182.M ④
	(14 – 3 x 2) x (52 – 35) =	R-CM R-CM 14 M+ 3 × 2 M– 52 – 35 × R-CM =	136.M
	(Constant) 135 x (12 + 14) = ① (12 + 14) ÷ 5 = ②	R-CM R-CM 12 + 14 M+ 135 × R-CM = R-CM ÷ 5 =	26.M 3'510.M ① 5.2M ②
Square root	$\sqrt{2+3}$ =	2 + 3 = √	2.2360679

2. UNIT CONVERSION CALCULATION

LENGTH

ENTER	PRESS	ANSWER	ENTER	PRESS	ANSWER
in	→ in⇄cm 7	cm	ft	→ ft⇄m 8	m
cm	← in⇄cm 7	in	m	← ft⇄m 8	ft
yd	→ yd⇄m 9	m	mile	→ mile⇄km ÷	km
m	← yd⇄m 9	yd	km	← mile⇄km ÷	mile

AREA

ENTER	PRESS	ANSWER	ENTER	PRESS	ANSWER
in^2	→ $in^2 \rightleftarrows cm^2$ 4	cm^2	ft^2	→ $ft^2 \rightleftarrows m^2$ 5	m^2
cm^2	← $in^2 \rightleftarrows cm^2$ 4	in^2	m^2	← $ft^2 \rightleftarrows m^2$ 5	ft^2
yd^2	→ $yd^2 \rightleftarrows m^2$ 6	m^2	acre	→ acre $\rightleftarrows m^2$ √	m^2
m^2	← $yd^2 \rightleftarrows m^2$ 6	yd^2	m^2	← acre $\rightleftarrows m^2$ √	acre
acre	→ acre $\rightleftarrows$ ha +/−	ha	$mile^2$	→ $mile^2 \rightleftarrows km^2$ ×	km^2
ha	← acre $\rightleftarrows$ ha +/−	acre	km^2	← $mile^2 \rightleftarrows km^2$ ×	$mile^2$

CAPACITY

ENTER	PRESS	ANSWER	ENTER	PRESS	ANSWER
in^3	→ $in^3 \rightleftarrows cm^3$ 1	cm^3	ft^3	→ $ft^3 \rightleftarrows m^3$ 2	m^3
cm^3	← $in^3 \rightleftarrows cm^3$ 1	in^3	m^3	← $ft^3 \rightleftarrows m^3$ 2	ft^3
fl.oz	→ fl.oz ⇄ ml −	ml	Imp.fl.oz	→ Imp.fl.oz ⇄ ml =	ml
ml	← fl.oz ⇄ ml −	fl.oz	ml	← Imp.fl.oz ⇄ ml =	Imp.fl.oz
gal	→ gal ⇄ l 3	l	Imp.gal	→ Imp.gal ⇄ l +	l
l	← gal ⇄ l 3	gal	l	← Imp.gal ⇄ l +	Imp.gal

WEIGHT			TEMPERATURE		
ENTER	PRESS	ANSWER	ENTER	PRESS	ANSWER
oz	→ oz⇄g [0]	g	lb	→ lb⇄kg [•]	kg
g	← oz⇄g [0]	oz	kg	← lb⇄kg [•]	lb
Imp.t	→ Imp.t⇄kg [%]	kg	°F	→ °F⇄°C [R-CM]	°C
kg	← Imp.t⇄kg [%]	Imp.t	°C	← °F⇄°C [R-CM]	°F
lb/in²	→ lb/in²⇄kPa [M+]	kPa*	kCal	→ kCal⇄kJ [C-CE]	kJ**
kPa*	← lb/in²⇄kPa [M+]	lb/in²	kJ**	← kCal⇄kJ [C-CE]	kCal

* : The Kilopascal (kPa) is the International System (SI) unit of pressure, adopted by International Committee of Weights and Measures (CIPM).

** : The Kilojoule (kJ) is the SI unit of energy, adopted by CIPM.

Example:	2 inch = ? (cm)	Key operation:	2 [→]	[in⇄cm] [7]	→ 5.08 (cm)
	12.7 cm = ? (inch)		12.7 [←]	[in⇄cm] [7]	→ 5 (inch)
	3 acre = ? (m^2)		3 [→]	[acre⇄m^2] [√]	→ 12'141 (m^2)
	5000 m^2 = ? (acre)		5000 [←]	[acre⇄m^2] [√]	→ 1.235483 (acre)
	162 kCal = ? (kJ)		162 [→]	[kCal⇄kJ] [C-CE]	→ 678.051 (kJ)
	20 lb/in^2 = ? (kPa)		20 [→]	[lb/in^2⇄kPa] [M+]	→ 137.9 (kPa)

Table of conversion factors which are pre-programmed in the machine

UNIT	FACTOR	UNIT	FACTOR
LENGTH			
in → cm	2.54	cm → in	0.3937007
ft → m	0.3048	m → ft	3.2808398
yd → m	0.9144	m → yd	1.0936132
mile → km	1.6093	km → mile	0.6213881
AREA			
in^2 → cm^2	6.4516	cm^2 → in^2	0.1550003
ft^2 → m^2	0.0929	m^2 → ft^2	10.764262
yd^2 → m^2	0.8361	m^2 → yd^2	1.1960291
acre → m^2	4047	m^2 → acre	0.000247
acre → ha	0.4047	ha → acre	2.4709661
$mile^2$ → km^2	2.5898	km^2 → $mile^2$	0.3861302

UNIT	FACTOR	UNIT	FACTOR
CAPACITY			
in^3 → cm^3	16.387	cm^3 → in^3	0.0610239
ft^3 → m^3	0.028317	m^3 → ft^3	35.314475
fl.oz → ml	29.574	ml → fl.oz	0.0338134
Imp.fl.oz → ml	28.41	ml → Imp.fl.oz	0.0351988
gal → l	3.7854	l → gal	0.2641728
Imp.gal → l	4.546	l → Imp.gal	0.2199736
WEIGHT			
oz → g	28.35	g → oz	0.0352733
lb. → kg	0.4536	kg → lb.	2.2045855
Imp.t → kg	1016.05	kg → Imp.t	0.0009842
TEMPERATURE			
°F → °C	$\frac{(°F - 32)}{1.8}$	°C → °F	1.8 x °C + 32

UNIT	FACTOR	UNIT	FACTOR
PRESSURE lb/in^2 → kPa	6.895	kPa → lb/in^2	0.1450326
ENERGY kCal → kJ	4.1855*	kJ → kCal	0.23892

* : This value is that of the 15° C kilocalorie (1000 cal_{15}) generally used in dietetics.

SPECIFICATIONS

Operating capacity:	8 digits
Components:	LSI etc.
Power supply:	Built-in solar cell
Brightness for operation:	More than 50 lux
Operating temperature:	0°C ~ 40°C (32°F ~ 104°F)
Dimensions:	70(W) x 122(D) x 5.9(H) mm (2-3/4"(W) x 4-13/16"(D) x 7/32"(H)) (Excluding wallet)
Weight:	80g (0.18 lb.) (Including wallet)
Accessory:	Operation manual

SHARP

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